

In the Claims:

Please replace claims 1, 10 and 16, and add new claims 24-28, all as shown below. All pending claims are reproduced below, including those that remain unchanged.

1. (Currently Amended): An electrical feed-through assembly to provide a hermetic seal in a coaxial connector, comprising:

a conductive insert having a bore;

a dielectric insert positioned within the bore having a first diameter sized such that an impedance of the dielectric insert is a target impedance;

a center ~~conductive~~ conductor pin extending through the dielectric insert;

an air dielectric positioned within the bore having a second diameter sized such that an impedance of the air dielectric is the target impedance; and

a compensation gap positioned between the dielectric insert and the air dielectric, the compensation gap having an impedance larger than the target impedance;

wherein the compensation gap is a recess formed within the dielectric insert.

2. (Original): The electrical feed-through assembly of claim 1, wherein the dielectric insert comprises a glass bead.

3. (Original): The electrical feed-through assembly of claim 1, wherein the conductive insert comprises a conductive metal.

4. (Original): The electrical feed-through assembly of claim 3, wherein the conductive insert comprises Kovar.

5. (Original): The electrical feed-through assembly of claim 1, further comprising a sleeve positioned within the bore, wherein the dielectric insert is formed in the sleeve.

6. (Original): The electrical feed-through assembly of claim 5, wherein the sleeve is positioned within the bore by soldering.

7. (Original): The electrical feed-through assembly of claim 5, wherein the dielectric insert is

formed by molding.

8. (Original): The electrical feed-through assembly of claim 1, wherein the dielectric insert is formed in the bore.

9. (Original): The electrical feed-through assembly of claim 8, wherein the dielectric insert is formed by molding.

10. (Currently Amended): An electrical feed-through assembly to provide a hermetic seal in a coaxial connector, comprising:

a conductive insert having a bore and a cavity within the bore, the cavity surrounding a portion of the bore;

a dielectric insert positioned within the bore having a diameter sized such that an impedance of a portion of the dielectric insert is a target impedance, the dielectric insert extending into the cavity;

a center ~~conductive~~ conductor pin extending through the dielectric insert;

an air dielectric positioned within the bore, the air dielectric having a diameter sized such that an impedance of a portion of the air dielectric is the target impedance; and

a compensation gap formed between the glass dielectric and the air dielectric, such that at least a portion of the compensation gap is surrounded by the cavity.

11. (Original): The electrical feed-through assembly of claim 10, wherein the dielectric insert comprises a glass bead.

12. (Original): The electrical feed-through assembly of claim 10, wherein the conductive insert comprises a conductive metal.

13. (Original): The electrical feed-through assembly of claim 10, wherein the conductive insert comprises Kovar.

14. (Original): The electrical feed-through assembly of claim 10, wherein the dielectric insert is formed within the bore.

15. (Original): The electrical feed-through assembly of claim 14, wherein the dielectric insert is formed by molding.

16. (Currently Amended): A dielectric insert assembly to provide a hermetic seal in a coaxial connector, comprising:

a substantially cylindrical sleeve having a first inner diameter; ~~and~~
a dielectric insert formed within the sleeve, the dielectric insert having a ~~proximal~~ first end and a ~~distal~~ second end;

a center conductor pin extending through the dielectric insert; and
a compensation gap extending into the second end of the dielectric insert, the compensation gap having
a second diameter smaller than the first inner diameter;

wherein a portion of the center conductor pin extends through the compensation gap.

~~wherein the distal end includes a recess having a second diameter.~~

17. (Currently Amended): The dielectric insert assembly of claim 16, wherein the dielectric insert comprises a glass bead.

18. (Currently Amended): The dielectric insert assembly of claim 16, wherein the sleeve comprises a conductive metal.

19. (Original) The dielectric insert assembly of claim 16, wherein the dielectric insert is formed by molding.

20. (Withdrawn): A method of forming a dielectric insert assembly for insertion into an electrical feed-through assembly including a conductive insert having a bore to provide a hermetic seal in a coaxial connector, comprising:

positioning a sleeve so that the sleeve can be filled;
positioning a molded compensation step concentrically within the sleeve, the molded compensation step having a diameter smaller than an inner diameter of the sleeve;
positioning a center conductor pin within the molded compensation step so that the center conductor pin is approximately centered axially within the sleeve;
flowing a liquefied dielectric into the sleeve such that the liquefied dielectric substantially fills

unoccupied space within the sleeve;

cooling the liquefied dielectric such that a dielectric insert is formed within the sleeve having the center conductor pin extending there-through; and

removing the molded compensation step from within the sleeve.

21. (Withdrawn): A method of forming an electrical feed-through assembly including a conductive insert having a bore having a first portion with a diameter sized such that an impedance of an air dielectric formed in the first portion is a target impedance and a second portion with a diameter sized such that an impedance of a glass dielectric formed in the second portion is the target impedance, the method comprising:

positioning a plug within the first portion of the bore;

positioning a center conductor pin within the plug so that when the plug is positioned within the bore, the center conductor pin is approximately centered axially within the bore;

flowing a liquefied dielectric into the conductive insert such that the liquefied dielectric fills the second portion of the bore not occupied by the plug;

cooling the liquefied dielectric; and

removing the plug from within the bore.

22. (Withdrawn): A method of forming an electrical feed-through assembly including a conductive insert having a bore having a first portion with a diameter sized such that an impedance of an air dielectric formed in the first portion is a target impedance and a second portion with a diameter sized such that an impedance of a glass dielectric formed in the second portion is the target impedance, the method comprising:

positioning a plug within the first portion of the bore such that the plug extends partially into the second portion of the bore;

positioning a center conductor pin within the plug so that when the plug is positioned within the bore, the center conductor pin is approximately centered axially within the bore;

flowing a liquefied dielectric into the conductive insert such that the liquefied dielectric fills the second portion of the bore not occupied by the plug;

cooling the liquefied dielectric; and

removing the plug from within the bore.

23. (Withdrawn): A method of forming an electrical feed-through assembly including a conductive insert having a bore having a first portion with a diameter sized such that an impedance of an air dielectric

formed in the first portion is a target impedance and a second portion with a diameter sized such that an impedance of a glass dielectric formed in the second portion is the target impedance, the bore further having a cavity extending from the first portion such that the cavity surrounds a portion of the second portion, the method comprising:

- positioning a plug within the first portion of the bore;

- positioning a center conductor pin within the plug so that when the plug is positioned within the bore, the center conductor pin is approximately centered axially within the bore;

- flowing a liquefied dielectric into the conductive insert such that the liquefied dielectric fills the second portion of the bore and the cavity;

- cooling the liquefied dielectric; and

- removing the plug from within the bore.

24. (New): The electrical feed-through assembly of claim 10, wherein an impedance of the compensation gap is higher than the target impedance.

25. (New): The electrical feed-through assembly of claim 16, wherein:

- an impedance of a portion of the dielectric insert is a target impedance;

- an impedance of the compensation gap is higher than the target impedance.

26. (New): An electrical feed-through assembly to provide a hermetic seal in a coaxial connector, comprising:

- a conductive insert having a bore and a cavity extending from the bore;

- a dielectric insert disposed within the bore, the dielectric insert having a diameter sized such that an impedance of a portion of the dielectric insert is a target impedance;

- a choke extending from the dielectric insert and disposed within the cavity;

- an air dielectric positioned within the bore, the air dielectric having a diameter sized such that an impedance of a portion of the air dielectric is the target impedance; and

- a center conductor pin extending through the dielectric insert and the air dielectric;

- wherein at least a portion of the air dielectric is coincident with the choke along the center conductor pin; and

- wherein the portion of the air dielectric coincident with the choke along the center conductor pin is a compensation gap.

27. (New): A coaxial connector assembly comprising:
- a package housing;
 - a microstrip disposed within the package housing;
 - an electrical feed-through assembly mounted in the package housing, the electrical feed-through assembly including:
 - a conductive insert having a bore,
 - a dielectric insert positioned within the bore having a first diameter sized such that an impedance of the dielectric insert is a target impedance,
 - a center conductor pin extending through the dielectric insert,
 - an air dielectric positioned within the bore having a second diameter sized such that an impedance of the air dielectric is the target impedance, and
 - a compensation gap positioned between the dielectric insert and the air dielectric, the compensation gap having an impedance larger than the target impedance,
 - wherein the compensation gap is a recess formed within the dielectric insert;
 - wherein the center conductor pin is in electrical communication with the microstrip.
28. (New): A coaxial connector assembly comprising:
- a package housing;
 - a microstrip disposed within the package housing;
 - an electrical feed-through assembly mounted in the package housing, the electrical feed-through assembly including:
 - a conductive insert having a bore and a cavity extending from the bore,
 - a dielectric insert disposed within the bore, the dielectric insert having a diameter sized such that an impedance of a portion of the dielectric insert is a target impedance,
 - a choke extending from the dielectric insert and disposed within the cavity;
 - an air dielectric positioned within the bore, the air dielectric having a diameter sized such that an impedance of a portion of the air dielectric is the target impedance, and
 - a center conductor pin extending through the dielectric insert and the air dielectric,
 - wherein at least a portion of the air dielectric is coincident with the choke along the center conductor pin,
 - wherein the portion of the air dielectric coincident with the choke is a compensation gap;

wherein the center conductor pin is in electrical communication with the microstrip.